Abstract of the Disclosure

OVERMOLDED GRIP

The present invention discloses an article of manufacture that is comprised of a soft thermoplastic elastomer composition overmolded onto a hard substrate, such as a metal or a thermoplastic resin, wherein the soft thermoplastic composition is comprised of (a) 5 to 60 parts by weight of a thermoplastic resin, such as a polyolefin resin or polystyrene, (b) 5 to 70 parts of a rubbery elastomer that is comprised of repeat units that are derived from a conjugated diene monomer, such as 1,3-butadiene and/or isoprene, wherein the rubbery elastomer is optionally at least partially crosslinked, wherein the repeat units in the rubbery polymer are distributed throughout the rubbery polymer in an essentially random manner, and wherein the rubbery polymer is a solution polymer, (c) 5 to 90 parts of a highly saturated elastomer selected from the group consisting of styrene-ethylene butylene-styrene polymers (SEBS), styrene-ethylene propylene-styrene polymers (SEPS), hydrogenated polybutadiene, hydrogenated polyisoprene, hydrogenated styrene-isoprene random copolymers, hydrogenated styrene-butadiene random copolymers, and (d) 15 to 200 parts by weight of an oil. The present invention further discloses a process for manufacturing an article of manufacture that comprises (1) melt blending (a) 5 to 60 parts by weight of a thermoplastic resin, such as a polyolefin resin and/or polystyrene, (b) 5 to 70 parts of a rubbery elastomer that is comprised of repeat units that are derived from a conjugated diene monomer, wherein the rubbery elastomer is at least partially crosslinked, wherein the repeat units in the rubbery polymer are distributed throughout the rubbery polymer in an essentially random manner, and wherein the rubbery polymer is a solution polymer, (c) 5 to 90 parts of a highly saturated elastomer selected from the group consisting of styrene-ethylene butylene-styrene polymers (SEBS), styrene-ethylene propylene-styrene polymers (SEPS), hydrogenated polybutadiene, hydrogenated polyisoprene, hydrogenated styrene-isoprene random copolymers, hydrogenated styrene-butadiene random copolymers, (d) 15 to 200 parts by weight of an oil, and (e) a crosslinking agent to produce a soft thermoplastic composition, wherein the melt blending is conducted above the melt point of the thermoplastic resin, and wherein the crosslinking of the rubbery elastomer is conducted in a continuous mixer; (2) pelletizing the soft thermoplastic elastomer composition as it is being discharged from the mixer, (3) overmolding the soft thermoplastic elastomer composition onto a hard substrate to produce the article of manufacture.